

REMARKS

Claims 1, 3-5, and 7-28 are pending in this application.

Claims 2 and 6 are cancelled from the application above without prejudice.

Claim 1 is amended above to incorporate the subject matter of claim 2. Claim 11 is similarly amended above to include the subject matter of claim 2. Claim 13 is amended to take account of examiner's objections and rejections. Claims 15 and 17-18 are amended to provide antecedent basis for a particular claim term. Minor amendments have been made to claims 14 and 19.

Withdrawn claim 29 has been amended above specifically to incorporate the separating device of claim 1, and rejoinder of claim 29 into the current application is requested below.

No new matter has been added to the application by way of these amendments.

The examiner's specification objections and claim objections and rejections are overcome or they are traversed as set forth below.

I. THE RESTRICTION REQUIREMENT

The Applicant acknowledges that the Restriction Requirement has been made final and that claim 29 was withdrawn from consideration and not considered in the November 23, 2009 Office Action.

II. INFORMATION DISCLOSURE STATEMENT

Applicant is separately submitting an IDS citing one of the prior art patents referenced in the specification.

III. THE DRAWINGS OBJECTION

The examiner objected to the drawings because they allegedly do not show at least one roller that is driven recited in claim 6 and tracking cameras recited in claim 19.

The examiner's objection with respect to the claim 6 limitation is moot as claim 6 has been cancelled from the application above without prejudice.

Regarding the tracking cameras, it is respectfully submitted that the drawings filed with the application do show the claimed tracking cameras: Page 12, line 2 states "The sensor suite 14

[depicted in Fig. 1] further includes a tracking camera”; Page 18, line 7 states “The apparatus 50 comprises sensing means 54 [depicted in Fig. 6] (including for example a hyperspectral imaging system and a tracking camera)”. Thus at least feature 54 shown in Figure 6 represents tracking cameras as well as other sensing means.

IV. CLAIM OBJECTIONS

The examiner’s objection to claim 13 is overcome above by amending the claims as suggested by the examiner.

V. CLAIM REJECTIONS UNDER 35 USC § 112, FIRST PARAGRAPH

(i) Claim 28 is rejected under 35 U.S.C. §112, first paragraph as not being enabled. It is respectfully submitted that this rejection is unfounded. Page 4, lines 14 to 25 of the international application discuss how the air jets may be adjusted and lines 21 to 25 provide the following teaching:

“To further assist in the removal of objects from the stream the nozzles may be angled relative to the stream by an amount determined appropriate to the particular class of material. Advantageously, the angle may be varied dynamically through an actuator linked to said controller in response to object data received thereby.”

Accordingly, claim 28 is fully enabled.

V. CLAIM REJECTIONS UNDER 35 USC § 112, SECOND PARAGRAPH

The examiner rejected claims 13, 15, 17 and 18 under the second paragraph of Section 112 for being indefinite. The examiner’s rejections are overcome or traversed as follows:

- The examiner’s rejection of claim 13 is overcome by amending the claim to indicate that the recited conveying means is an additional conveying means. However, the Applicant does not consider the skilled person would have been in any doubt as to what the original claim encompassed.
- The examiner rejected claims 15, 17 and 18 for reciting “said means” on the basis that there is insufficient basis for the term. The examiner’s rejection is overcome by amending claims 15 and 17-18 to provide antecedent basis for the claim term at issue.

VI. TRAVERSE OF CLAIM REJECTIONS UNDER 35 USC § 102

The examiner rejects previous claims 1-4, 7, 9-12, 14-20 and 28 under 35 U.S.C. 102(b) as being anticipated by US Patent No 6,313,422 to Anibas.

The European Patent Office also raised the same rejection based on EP 0 982 083, which is a corresponding foreign language counterpart to US Patent No 6,313,422. The claims in Europe were restricted by Applicant and were subsequently allowed (issuing as European Patent No. 1740322B). The same amendments are now being made to claims 1 and 11. It is submitted that the invention as redefined in claims 1 and 11 are clearly novel and inventive over Anibas.

The examiner considers that the claimed feature of “a two dimensional array of individually actuable air jet nozzles” is disclosed as blow-out nozzles 10 of Anibas, since although the examiner concedes only a single line of nozzles would be present, the examiner contends they would “occupy space over both the width and length”. It is respectfully submitted that this is not a realistic interpretation of the teachings of Anibas. (Indeed, conversely, if Anibas *had* attempted during its own prosecution to add claim language to a two-dimensional array of nozzles, that would surely have been regarded as a new teaching and hence, new matter not previously disclosed!)

The only significant mention of the nozzles 10 in Anibas is:- at Column 1, lines 61 to 63, where it is stated that the blow out nozzles can be arranged downstream of the sensor below the grate-like conveyor belt; at Column 2, lines 5 to 7, where it is stated that the blow-out nozzles can be arranged along the entire width of the conveyor belt; and at Column 3, lines 6 to 10, where it is stated that the blow-out nozzles are arranged upstream of the removal devices 6 between upper and lower strands of the conveyor, and in a upwardly facing orientation. It is respectfully submitted therefore that there is no disclosure in Anibas that the arrays of nozzles extend in two dimensions, as claimed in the present application.

There is also not any detail in Anibas of how the nozzles are activated, whether they are individually activated or activated in pairs, or activated in three's or four's along the line of nozzles. The only emphasis in Anibas is that the nozzles should extend along the entire width of the conveyor belt. Rather, in Anibas, importance is more attached to the use of the catching devices which, as explained at Column 2, lines 35 to 38, has the advantage that the apparatus is “insensitive to imprecisions in the blow-out apparatuses”.

Thus, it is submitted that the claimed feature of “a two dimensional array of individually actuable air jet nozzles” is not disclosed in Anibas. As explained in the present application on page 15 for example, and as illustrated in present Figure 3, the trajectories of objects ejected by a two-dimension array of air jets are more consistent than those produced by one-dimensional, linear arrays of jets typically used in the prior art.

In order further to emphasise the differences between the present invention and the prior art, Claim 1 has been amended to specify that a two-dimensional group of nozzles are selected for actuation from the two-dimensional array so as to remove an object from the object stream. Corresponding amendments have been made to Claims 11. Support for such amendments is clearly found for example on page 15, lines 13 to 16 and page 17 lines 4 to 6, as well as in Figure 3. Thus, not only are the nozzles statically arranged in the apparatus in two dimensions (the “two-dimensional array”), but they are arranged to be selectively activated during operation in two dimensions (the selected “two-dimensional group”).

The independent claims have also been amended to include the subject matter of claim 2 (now cancelled), namely, that the (two-dimensional) group of nozzles are selectively actuated corresponding to an object outline as contained in the object data. It is submitted that this aspect is clearly not disclosed or suggested in Anibas, contrary to the examiner’s allegation. As previously discussed, there is no detail as to how the jets of Anibas are selected for actuation. They could, for example, be set up such that the 1 or 2 jets are activated, these being aimed at the centre (of gravity) of an object. We simply cannot tell because Anibas does not provide any detail on this, and by contrast, appears to be reconciled to “imprecisions in the blow-out apparatuses” function. The present inventor’s method of removing an object by activating a two-dimensional grouping of nozzles selected to correspond to the outline of an object is highly innovative and clearly not flagged or suggested by the cited art.

Accordingly claims 1, 11 are considered clearly patentable over the cited art. The remaining dependent claims are allowable by virtue of their dependence upon claims 1 or 11.

It is, however, noted in passing that a number of the Examiner’s allegations in respect of dependent claims are unfounded. In particular, the rejection of claim 7 is unjustified; spaced apart one-dimensional rows of nozzles are not the same as a two-dimensional array.

Referring to examiner’s rejection of claim 11, amended claim 11 is allowable for the

reasons indicated above in relation to amended claim 1, as both claims have been similarly restricted. It is, however, further noted that examiner's rejection of claim 11 and claim 17, which each require the outline shape to be identified, is unjustified. The contention that Column 3, lines 20 onwards discloses the claimed feature "input data further corresponds to the outline shape of said identified input objects" is incorrect. The cited passage merely states that "Following the performed recognition the respective positions of the pieces of waste are known on the conveyor belt". A position is not the same as an outline shape and could be merely a single (x,y) co-ordinate on the conveyor belt corresponding, for example, to the leading edge, trailing edge or centre of the object. Hence, claims 11 and 17 are not anticipated in this respect.

VII. TRAVERSE OF CLAIM REJECTIONS UNDER 35 USC § 103

The examiner rejects previous claims 5, 6, 21 and 22 under 35 U.S.C. 103(a) as being unpatentable over US Patent No 6,313,422 to Anibas in view of what is well known in the art. Examiner also rejects previous claims 8 and 25 to 27 under 35 U.S.C. 103(a) as being unpatentable over Anibas in view of US 5,350,118 to Mitchell, and rejects previous claim 13 under 35 U.S.C. 103(a) as being unpatentable over Anibas in view of US 4,352,430 to Maier.

It is submitted that claims 5, 6, 8, 13, 21, 22 and 25 to 27 are allowable merely by virtue of their appendage to amended claims 1 or 11, respectively, which are directed to novel and inventive subject matter.

VIII. ALLOWABLE SUBJECT MATTER

It is noted that claims 23 and 24 are considered to be directed to allowable subject matter.

IX. REQUEST FOR REJOINDER OF CLAIM 29

The applicant hereby requests rejoinder of withdrawn claim 29 into the application. The Applicant has amended withdrawn independent claim 29 to depend upon independent claim 1. These amendments cause withdrawn claim 29 to share common special technical features with claim 1. Therefore, rejoinder of claim 29 with the pending claims is justified for at least this reason.

For the above reasons, the examiner's claim objections and rejections are overcome and all pending application claims are directed to novel and inventive subject matter.

Respectfully Submitted
McDonnell Boehnen Hulbert & Berghoff

Date: March 17, 2010

By: /A. Blair Hughes/
A. Blair Hughes
Reg. No. 32,901
312-913-2123